AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method for controlling a gear ratio change from a current gear to a next gear in an automatic transmission coupled to an engine by disengaging an offgoing friction element and engaging an oncoming friction element, the transmission having an input, input speed, output, and output torque, the method comprising the steps of:

repetitively determining a target output torque;

initiating a gear ratio change from the current gear to the next gear;

repetitively increasing a torque capacity of the oncoming friction element toward a magnitude of torque transmitted by the oncoming friction element when the target output torque is produced in the next gear;

decreasing a torque capacity of the offgoing friction element to a predetermined torque capacity;

producing an indication of the current output torque; and

in response to the indication, adjusting an operating parameter of the engine to control the engine torque such that the output torque is maintained substantially at the target output torque.

2. (Original) The method of claim 1 wherein the target output torque current is determined with reference to a position of an accelerator pedal and a current vehicle speed.

3. (Original) The method of claim 1 wherein the target output torque current is determined with reference to a position of an accelerator pedal, a position of a shift lever, and a current vehicle speed.

4. (Original) The method of claim 1 wherein the step of decreasing a torque capacity of the offgoing friction element, further includes:

determining the magnitude of torque transmitted by the offgoing friction element when the target output torque is produced at the output in the current gear; and

decreasing the torque capacity of the offgoing friction element to a magnitude that is equal to or greater than the magnitude of torque transmitted by the offgoing friction element when the target output torque is produced at the output in the current gear.

5. (Original) The method of claim 1 wherein the step of decreasing a torque capacity of the offgoing friction element, further includes:

decreasing the torque capacity of the offgoing friction element to a magnitude such that the offgoing friction element does not slip when the target output torque is produced at the output in the current gear.

6. (Original) The method of claim 1 wherein the step of decreasing a torque capacity of the offgoing friction element, further includes:

producing an second indication when the magnitude of torque transmitted by the offgoing friction element reaches zero while the target output torque is produced at the output in the current gear;

producing a third indication when a current gear ratio produced by the transmission is substantially equal to the gear ratio produced by the transmission in the next gear; and

decreasing the torque capacity of the offgoing friction element when the second and third indications are present.

7. (Original) The method of claim 1, further comprising:

producing an second indication when the magnitude of torque transmitted by the offgoing friction element reaches zero while the target output torque is produced at the output in the current gear;

producing a third indication when a current gear ratio produced by the transmission is substantially equal to the gear ratio produced by the transmission in the next gear; and

adjusting an operating parameter of the engine to control the engine speed to a predetermined speed when the second and third indications are present.

8. (Original) The method of claim 1 wherein said engine operating parameter is an engine airflow.

9. (Original) The method of claim 1 wherein said engine operating parameter is a throttle position of the engine.

10. (Original) The method of claim 1 wherein said engine operating parameter is an ignition timing.

11. (Original) The method of claim 1 wherein said engine operating parameter is an engine air-fuel ratio.

12. (Currently Amended) A system for controlling gear ratio changes, comprising:

an internal combustion engine having an engine speed and engine torque;

an automatic transmission driveably coupled to the engine, the transmission having an input, input speed, output, and output torque at the output, an offgoing friction element, an oncoming friction element, a current gear, and a next gear, produced by disengaging the offgoing friction element and engaging the oncoming friction element;

a torque sensor secured to the output for producing an indication of the magnitude of a current output torque; and

a controller for determining a target output torque, increasing a torque capacity of the oncoming ~~clutch~~ friction element toward a magnitude of torque carried by the oncoming ~~clutch~~ friction element when the target output torque is produced at the output in the next gear, decreasing a torque capacity of the offgoing friction element clutch to a predetermined torque capacity, and in response to the indication, adjusting an operating parameter of the engine to control the engine torque such that the output torque is maintained at or below the target output torque.

13. (Original) The system of claim 12, further comprising:

a first sensor producing a signal representing the position of an accelerator pedal;

a second sensor producing a signal representing a current vehicle speed; and

wherein the controller determines the target output torque with reference to the position of an accelerator pedal and current vehicle speed.

14. (Currently Amended) The system of claim 12, wherein ~~further comprising~~:

~~a~~ the controller further comprises determining the magnitude of torque transmitted by the offgoing friction element when the target output torque is produced at the output in the current gear, and decreasing the torque capacity of the offgoing friction element to a magnitude that is equal to or greater than the magnitude of torque transmitted by the offgoing friction element when the target output torque is produced at the output in the current gear.

15. (Currently Amended) The system of claim 12, wherein ~~further comprising~~:

~~a~~ the controller further comprises ~~for~~ decreasing the torque capacity of the offgoing friction element to a magnitude such that the offgoing friction element does not slip when the target output torque is produced at the output in the current gear.

16. (Currently Amended) The system of claim 12, wherein ~~further comprising~~:

~~a~~ the controller further comprises producing an second indication when the magnitude of torque transmitted by the offgoing friction element reaches zero while the target output torque is produced at the output in the current gear, producing a third indication when a current gear ratio produced by the transmission is substantially equal to the gear ratio produced by the transmission in the next gear, and decreasing the torque capacity of the offgoing friction element when the second and third indications are present.

17. (Currently Amended) The system of claim 12, wherein ~~further comprising~~:

~~a~~ the controller further comprises producing an second indication when the magnitude of torque transmitted by the offgoing friction element reaches zero while the target output torque is produced at the output in the current gear, producing a third indication when a current gear ratio produced by the transmission is substantially equal to the gear ratio produced by the transmission in the next gear, and adjusting ~~an~~ the operating parameter of the engine to control the engine speed to a predetermined speed when the second and third indications are present.

18. (Original) The system of claim 12 wherein the engine operating parameter adjusted by the controller is an engine airflow.

19. (Original) The system of claim 12 wherein the engine operating parameter adjusted by the controller is a throttle position of the engine.

20. (Original) The system of claim 12 wherein the engine operating parameter adjusted by the controller is an ignition timing.

21. (Original) The method of claim 12 wherein the engine operating parameter adjusted by the controller is an engine air-fuel ratio.